

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
28 October 2004 (28.10.2004)

PCT

(10) International Publication Number  
**WO 2004/092212 A3**

- (51) International Patent Classification<sup>7</sup>: **A61K 39/00**, C07K 14/47
- (21) International Application Number:  
PCT/IB2004/001701
- (22) International Filing Date: 15 April 2004 (15.04.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/462,945 15 April 2003 (15.04.2003) US
- (71) Applicant (for all designated States except US): **AVENTIS PASTEUR, LTD.** [CA/CA]; 1755 Steeles Avenue, Toronto, Ontario (CA).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **BERINSTEIN**, Nell [CA/CA]; 31 Burton Road, Toronto, Ontario (CA). **GALLICHAN**, Scott [CA/CA]; 1189 Britannia Road, Campbellville, Ontario (CA). **LOVITT**, Corey [CA/CA]; 14 Bambi Trail, Bolton, Ontario (CA). **PARRINGTON**, Mark [CA/CA]; 214 Melbourne Drive, Bradford, Ontario (CA). **PEDYCZAK**, Artur [CA/CA]; 1399 Colmar Avenue, Pickering, Ontario (CA). **RADVANYI**, Laszlo [CA/CA]; 337 Crosby Avenue, Richmond Hill, Ontario (CA). **SINGH-SANDHU**, Devender [CA/CA]; 100 Gayla Street, Thornhill, Ontario (CA).
- (74) Agent: **YACOOB**, Reza, K.; Aventis Pasteur Limited, 1755 Steeles Avenue West, Toronto, Ontario M2R 2T4 (CA).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**  
— with international search report  
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report:  
14 April 2005
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



WO 2004/092212 A3

(54) Title: TUMOR ANTIGENS BFA5 FOR PREVENTION AND/OR TREATMENT OF CANCER

(57) Abstract: The present invention relates to a nucleic acid encoding a polypeptide and the use of the nucleic acid or polypeptide in preventing and/or treating cancer. In particular, the invention relates to improved vectors for the insertion and expression of foreign genes encoding tumor antigens for use in immunotherapeutic treatment of cancer.

## INTERNATIONAL SEARCH REPORT

PCT/IB2004/001701

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K39/00 C07K14/47

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, MEDLINE, BIOSIS, EMBASE, CHEM ABS Data, Sequence Search

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/47959 A (LUDWIG INSTITUTE FOR CANCER RESEARCH; MEMORIAL SLOAN-KETTERING CANCER) 5 July 2001 (2001-07-05) cited in the application see whole doc. esp. claims and p.23 ff., seq id 23	1-35, 40-63
X	----- JAEGER D. ET AL.,: "identification of tumor-restricted antigens NY-BR1, SCP-1, and a new cancer/testis-like antigen NW-BR-3 by serological screening of a testicular library with breast cancer serum" CANCER IMMUNITY, vol. 2, 28 June 2002 (2002-06-28), page 5, XP002316851 see whole doc. esp. abstract and discussion ----- -/-	1-35, 40-63

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*S\* document member of the same patent family

Date of the actual completion of the international search

9 February 2005

Date of mailing of the international search report

23/02/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Mueller, F

## INTERNATIONAL SEARCH REPORT

PCT/IB2004/001701

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JAGER DIRK ET AL: "Identification of a tissue-specific putative transcription factor in breast tissue by serological screening of a breast cancer library" CANCER RESEARCH, AMERICAN ASSOCIATION FOR CANCER RESEARCH, BALTIMORE, MD, US, vol. 61, no. 5, 1 March 2001 (2001-03-01), pages 2055-2061, XP002205341 ISSN: 0008-5472 cited in the application the whole document -----	
E	WO 2004/037284 A (AVENTIS PASTEUR LIMITED; SUNNYBROOK AND WOMEN'S COLLEGE HEALTH SCIENCE) 6 May 2004 (2004-05-06) see whole doc. esp. claims -----	1-35, 40-62

# INTERNATIONAL SEARCH REPORT

PCT/IB2004/001701

## Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material

☒

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☒

in written format

☒

in computer readable form

c. time of filing/furnishing

☐

contained in the international application as filed

☐

filed together with the international application in computer readable form

☒

furnished subsequently to this Authority for the purpose of search

2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

Continuation of Box II.1

Although claims 31, 52-57 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

-----

Continuation of Box II.2

Claims Nos.: 36-39

Present claims 36-39 relate to compounds defined by reference to Table X and XI. Tables X and XI could not be identified in the description, no support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT could be identified. Consequently, no search has been carried out for these claims.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

## INTERNATIONAL SEARCH REPORT

PCT/IB2004/001701

**Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 36-39  
because they relate to subject matter not required to be searched by this Authority, namely:  
Although claims 31, 52-57 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☒ Claims Nos.: 36-39  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

PCT/IB2004/001701

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 0147959	A	05-07-2001	US	6774226 B1	10-08-2004
			AU	4903101 A	09-07-2001
			EP	1261704 A2	04-12-2002
			JP	2003530085 T	14-10-2003
			WO	0147959 A2	05-07-2001
WO 2004037284	A	06-05-2004	WO	2004037284 A1	06-05-2004
			US	2004223949 A1	11-11-2004